UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,561	02/09/2004	Vincent Park	060568U3	1112

23696 7590 10/14/2010
QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
DANIEL JR, WILLIE J	

ART UNIT	PAPER NUMBER
2617	

NOTIFICATION DATE	DELIVERY MODE
10/14/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	10/774,561	PARK ET AL.	
	Examiner	Art Unit	
	WILLIE J. DANIEL JR	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *58-63,65-74,76-85,87-96,98-105 and 107-118* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *58-63,65-74,76-85,87-96,98-105 and 107-118* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to applicant's amendment filed on 30 July 2010. **Claims 58-63, 65-74, 76-85, 87-96, 98-105, and 107-118** are now pending in the present application and **claims 1-57, 64, 75, 86, 97, and 106** are canceled. This office action is made **Final**.

Specification

2. The objection applied to the specification is withdrawn, as the proposed specification correction is approved.

Claim Objections

3. **Claim 85** is objected to because of the following informalities:

    a. Claim 85 is improperly labeled as "Previously Presented" but the claim includes amended language. The Examiner interprets the claims as --Currently Amended-- and suggests clarifying the claim status.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 58-59, 62-63, 66-68, 70, 73-74, 77-79, 81, 84-85, 88-90, 92, 95-96, 99-101, 103-104, and 108-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al**. (hereinafter Miah) (**EP 1217855 A1**).

Regarding **claim 58**, Sanmugam discloses a system for distributed packet-based paging { (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9) }, comprising:

a plurality of access nodes (e.g., BS 256) configured to provide paging messages { (see col. 4, line 56 - col. 5, line 45; col. 6, lines 22-25; abstract; Figs. 1 & 9), where the system provides pages to a mobile station (M1) },

each of the access nodes (e.g., BS 256) comprising a paging requirements determination module (e.g., BS 256) and a paging resource control module (e.g., BS 256) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9 & 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent,

wherein each paging requirements determination module is configured to receive and analyze paging information to determine a level of quality of service (e.g., class of service or priority) for a corresponding paging message (e.g., page requests) { (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9,

line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. }, and

wherein each paging resource control module is configured to allocate paging resources and generate the corresponding paging message in accordance with the level of quality of service (e.g., class of service or priority) determined by the paging requirements determination module { (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately }. Sanmugam clearly discloses the features as indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) level of quality of service was well known in the art, as taught by Miah.

As further support in the same field of endeavor, Miah at the least discloses the feature(s) level of quality of service (e.g., an indicator of type or priority) (see col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals and the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). In addition, Miah at the least further the feature(s) discloses a system for distributed packet-based paging, comprising: a plurality of access nodes (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) configured to exchange paging messages (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message. }.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) level of quality of service, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; [0012 or lines 14-18]).

Regarding **claims 59, 70, 81, and 92**, Sanmugam discloses an access node for use in a system for distributed packet-based paging (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), comprising:

a paging requirements determination module (e.g., BS 256); and a paging resource control module (e.g., BS 256) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9 & 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent,

wherein the paging requirements determination module is configured to receive and analyze paging information to determine a level of quality of service (e.g., class of service or priority) for a corresponding paging message (e.g., page requests) { (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. },

wherein the paging resource control module is configured to allocate paging resources and generate the corresponding paging message in accordance with the level of quality of service (e.g., class of service or priority) determined by the paging requirements determination module { (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately }. Sanmugam clearly discloses the features as indicated

above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) level of quality of service was well known in the art, as taught by Miah.

As further support in the same field of endeavor, Miah at the least discloses the feature(s) level of quality of service (e.g., an indicator of type or priority) (see col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals and the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). In addition, Miah at the least further the feature(s) discloses a system for distributed packet-based paging, comprising: a plurality of access nodes (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) configured to exchange paging messages (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message. }.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) level of quality of service, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; [0012 or lines 14-18]).

Regarding **claims 62, 73, 84, and 95**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 109), in addition Sanmugam further discloses the access node of claim 109, wherein the exchange of the paging information is based on an Internet protocol (IP) (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 8A-B), where page requests are based on paging

information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. As further support, Miah at the least discloses the feature(s) wherein the exchange of the paging information is based on an Internet protocol (IP) (see col. 1, [0002 or lines 13-16]; col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals.

Regarding **claims 63, 74, 85, and 96**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 62), in addition Sanmugam further discloses the access node of claim 62, wherein the paging requirements determination module is further configured to determine the level of quality of service (e.g., class of service or priority) based on matching IP datagrams to specific paging requirements (see col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent. As further support, Miah at the least discloses the feature(s) wherein the paging requirements determination module is further configured to determine the level of quality of service (e.g., an indicator of type or priority) based on matching IP datagrams to specific paging requirements (see col. 1, [0002 or lines 13-16]; col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals.

Regarding **claims 66, 77, 88, and 99**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 109), in addition Sanmugam further discloses the access node of claim 109, wherein the QoS (e.g., class of service or priority) is one of a plurality of levels (see col. 7, lines 8-15; col. 8, line 1-25,45-64; col. 9,

line 59-62,8-18; col. 13, lines 1-32; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent.

Regarding **claims 67, 78, 89, 100, and 108**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 109), in addition Sanmugam further discloses the access node of claim 109, wherein the QoS (e.g., class of service or priority) requires at least one of transmission of the page multiple times and retransmission of the page at least once in the absence of an acknowledgment (see col. 6, lines 22-40; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; col. 13, lines 1-32; Figs. 9, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent.

Regarding **claims 68, 79, 90, and 101**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 109), in addition Sanmugam further discloses the access node of claim 109, wherein the determined level of quality of service comprises determining whether a plurality of paging requests are associated as a group with a common quality of service indicator (see col. 8, lines 24-30,1-9; col. 6, lines 24-26; col. 7, lines 8-15; col. 10, lines 32-34); and

the paging resource control functionality comprises allocating a fraction of paging channel capacity or paging transmission opportunities to the plurality of page requests associated with the group (see col. 8, lines 1-11,30-34; col. 7, lines 8-15; col. 10, lines 53-56; Figs. 9, 2-3).

Regarding **claims 103-104**, Sanmugam discloses an end node for use in a system for distributed packet-based paging (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), comprising:

means for receiving a first page from a first access node (e.g., 256) comprising a first paging resource control module and a first paging requirements determination module (e.g., BS 256) { (see col. 13, lines 43-50; col. 6, lines 21-25) },

where the first paging resource control module is configured to allocate paging resources and generate the first page to the end node (e.g., M1) in accordance with a first level of quality of service (e.g., class of service or priority) determined based on paging information by the first paging requirements determination module { (see col. 5, lines 40-45; col. 6, lines 21-25; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately }; and

means for receiving a second page, different from the first page, from a second access node (e.g., 256) comprising a second paging resource control module and a first paging requirements determination module (e.g., BS 256), where the second paging resource control module is configured to allocate paging resources and generate the second page in accordance with a second level of quality of service determined based on the same paging information received by the second paging requirements determination module (see col. 5,

lines 19-27,51-57; col. 13, lines 43-50; col. 6, lines 21-25), where a mobile station can receive a message in a second cell (e.g., 256) after being hand-off to another cell (e.g., 256). Sanmugam inexplicitly discloses having the feature(s) means for receiving a second page, different from the first page, from a second access node comprising a second paging resource control module and a first paging requirements determination module, where the second paging resource control module is configured to allocate paging resources and generate the second page in accordance with a second level of quality of service determined based on the same paging information received by the second paging requirements determination module. However, the examiner maintains that the feature(s) means for receiving a second page, different from the first page, from a second access node comprising a second paging resource control module and a first paging requirements determination module, where the second paging resource control module is configured to allocate paging resources and generate the second page in accordance with a second level of quality of service determined based on the same paging information received by the second paging requirements determination module was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) means for receiving a second page, different from the first page, from a second access node (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) comprising a second paging resource control module and a first paging requirements determination module, where the second paging resource control module is configured to allocate paging resources and generate the second page in accordance with a second level of quality of service (e.g., an indicator of type or priority) determined based on the same paging information received by

the second paging requirements determination module { (see col. 1, [0007]; col. 2, [0012 or lines 53-57]; col. 3, [0016 or lines 10-16]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). As further support, Miah at the least further discloses the feature(s) an end node (e.g., mobile phone 2) for use in a system for distributed packet-based paging (see col. 1, [0007]; col. 2, [0015] - col. 3, [0017]), where the mobile station (2) is sent a paging message via a the first access node (e.g., radio access network with RNC 12, node B 16, and transmitter/receiver 20) and the second access node (e.g., radio access network with RNC 14, node B 18, and transmitter/receiver 22). }.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) means for receiving a second page, different from the first page, from a second access node comprising a second paging resource control module and a first paging requirements determination module, where the second paging resource control module is configured to allocate paging resources and generate the second page in accordance with a second level of quality of service determined based on the same paging information received by the second paging requirements determination module, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; 0012 or lines 14-18]).

Regarding **claim 109, 110, 111, and 112**, Sanmugam discloses the access node of claim 59, wherein the access node (e.g., BS 256) is configured to exchange paging information with a second access node in the system for distributed packet-based paging over

an access link, the plurality of access nodes serving a plurality of end nodes (e.g., mobile station M1), and to serve at least end node (see col. 4, line 56 - col. 5, line 45; Figs. 1 & 9), and

wherein the paging requirements determination module is further configured to determine the level of quality of service (QoS) (e.g., class of service or priority) at least in part (i) from analyzing at least one of a header field or a payload field, using a packet classification technique (e.g., class of service or priority), from a data message (e.g., page requests) received over a corresponding access link and (ii) from stored information uniquely associated with the access node (e.g., BS 256) in which the paging requirements determination module resides { (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent in which a header field would be implicit due to paging information of the paging requests as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. }. Sanmugam inexplicitly discloses having the feature(s) at least one of a header field or a payload field. However, the examiner maintains that the feature(s) at least one of a header field or a payload field was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) at least one of a header field or a payload field (see col. 2, [0012]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2). As further support, Miah at the least discloses the feature(s) level of quality of service (e.g., an indicator of type or priority) (see col. [0012 or lines 12-23]), where communication is provided by a packet radio system exchanging data or paging signals and the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) at least one of a header field or a payload field, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; [0012 or lines 14-18]).

Regarding **claims 113 and 116**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 103), in addition Sanmugam further discloses wherein the first access node (e.g., BS 256) and the second access node (e.g., BS 256) are each configured to exchange paging information corresponding to the first page and the second page over corresponding access links { (see col. 4, line 56 - col. 5, line 45; col. 14, lines 40-51; Figs. 1 & 9), where a mobile station can receive a message in a second cell (e.g., 256) after being hand-off to another cell (e.g., 256) (see col. 5, lines 19-27,51-57; col. 13, lines 43-50; col. 6, lines 21-25) }.

Regarding **claims 114 and 117**, Sanmugam discloses the end node of claim 113 wherein each of the first and second paging requirements determination module (e.g., BS 256) is configured to determine paging requirements to send to the first and second paging resource control module, respectively, currently in communication with an intended end node of the first and second page, the respectively, the paging requirements being derived at least in part (i) from analyzing at least one of a header field or a payload field, using a packet classification technique (e.g., class of service or priority), from a data message (e.g., page requests) received over a corresponding one of the access links and (ii) from stored information uniquely associated with the first or second access node (e.g., BS 256), respectively, in which the paging requirements determination module resides { (see col. 5, lines 40-45; col. 4, line 66 - col. 5, line 13; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; col. 9, line 2; Figs. 9, 1, 8A-B), where page requests are based on paging information such as class of service, paging parameters, paging field, paging characteristics, and paging extent in which a header field would be implicit due to paging information of the paging requests as evidenced by the fact that one of ordinary skill in the art would clearly recognize. In addition, paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s) are transmitted according to paging priorities (see col. 12, lines 29-40), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately. }. Sanmugam inexplicitly discloses having the feature(s) at least one of a header field or a payload field. However, the examiner maintains that the

feature(s) at least one of a header field or a payload field was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) at least one of a header field or a payload field (see col. 2, [0012]; Fig. 1), where the radio access network reads the header (e.g., an indicator of type or priority) of a paging message to schedule or prioritize for transmitting to a mobile phone (2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) at least one of a header field or a payload field, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; [0012 or lines 14-18]).

Regarding **claims 115 and 118**, the combination of Sanmugam and Miah discloses every limitation claimed, as applied above (see claim 114), in addition Sanmugam further discloses wherein each respective paging resource control module is configured to provide paging resource control functionality in accordance with the paging requirements received from the paging requirements determination module, where the paging resource control functionality includes controlling at least one of (i) paging resources, (ii) paging operations, or (iii) the generation of pages to the respective an intended end node (see col. 5, lines 40-45; col. 10, lines 53-56; col. 13, lines 1-32; col. 7, lines 8-15; col. 8, line 1-9; Figs. 9, 1, 8A-B), where a base station provides allocates resources to a mobile station (M1) (see col. 4, line 64 - col. 5, line 13) and where paging orders are transmitted towards the base station (e.g., 256) and places the page message(s) in buffers of the base stations in which the page message(s)

are transmitted according to paging priorities (see col. 12, lines 29-40; col. 8, line 45 - col. 9, line 4), where the base station (e.g., 256) determines what the paging priorities are in order to allocate resources to distribute the paging messages appropriately.

Claims 60, 71, 82, 93, and 105 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al**. (hereinafter Miah) (**EP 1217855 A1**) as applied to claims 59, 70, 81, and 92 above, and further in view of **Palat et al**. (hereinafter Palat) (**US 6,765,890 B1**).

Regarding **claim 60, 71, 82, 93, and 105**, Sanmugam discloses the access node of claim 59, wherein the paging requirements determination module further comprises:

a monitoring agent module that determines when to initiate a page to the intended end node (see col. 12, lines 15-28);

a tracking agent module that tracks the location of end nodes based on received location update signals (see col. 7, lines 23-36); and

an anchor paging agent module that coordinates (e.g., priority or order) page request signaling to the intended node (see col. 8, lines 5-9,24-25). The combination of Sanmugam and Miah inexplicitly discloses having the feature(s) received location update signals. However, the examiner maintains that the feature(s) received location update signals was well known in the art, as taught by Palat.

In the same field of endeavor, Palat discloses the feature(s) received location update signals (see col. 4, lines 11-19; col. 5, lines 17-26; col. 6, lines 4-20,44-51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Palat to have the feature(s) received location update signals, in order to provide an implementation that performs a routing area update as a mobile terminal moves between radio access system coverage areas, as taught by Palat (see col. 2, lines 11-15).

Claims 61, 72, 83, and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam** (**US 5,533,094**) in view of **Miah et al**. (hereinafter Miah) (**EP 1217855 A1**) as applied to claims 59, 70, 81, and 92 above, and further supported by **Wallentin et al**. (hereinafter Wallentin) (**US 6,834,191 B2**).

Regarding **claims 61, 72, 83, and 94**, Sanmugam discloses the access node of claim 59, wherein the paging resource control module further comprises:

a local paging agent module configured to coordinate signaling between the paging requirements determination module and other access nodes (see col. 5, lines 19-27; col. 5, line 65 - col. 6, line 5; col. 6, lines 17-43; Figs. 1-2 & 9), where the system pages surrounding location areas. Sanmugam inexplicitly discloses having the feature(s) signaling between the paging requirements determination module and other access nodes. However, the examiner maintains that the feature(s) signaling between the paging requirements determination module and other access nodes was well known in the art, as taught by Miah.

In the same field of endeavor, Miah discloses the feature(s) signaling between the paging requirements determination module and other access nodes (see col. 1, [0005]; col. 2, [0012, 0015/lines 53-57]), where the RNC (12, 14) are interlinked to communicate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah to have the feature(s) signaling between the PRD module and other access nodes, in order to provide an improved RNC for scheduling or prioritizing paging messages, as taught by Miah (see col. 2, [0011; 0012 or lines 14-18]). The combination of Sanmugam and Miah clearly discloses the feature(s) indicated above as evidenced by the fact that one of ordinary skill in the art would clearly recognize. However, the examiner maintains that the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes was well known in the art, as taught by Wallentin.

As further support in the same field of endeavor, Wallentin discloses the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes (see col. 7, lines 19-23; col. 13, lines 17-31; Figs. 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam and Miah as further supported by Wallentin to have the feature(s) a local paging agent module that coordinates signaling between the PRD module and other access nodes, in order to provide a technique for paging a mobile station in a multicell area, as taught by Wallentin (see col. 4, lines 24-27).

Claims 65, 76, 87, 98, and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam (US 5,533,094)** in view of **Miah et al.** (hereinafter Miah) (**EP 1217855 A1**) as applied to claim 109, 110, 111, 112, and 115 above, and further in view of **Laroia et al.** (hereinafter Laroia) (**US 6,823,191 B2**).

Regarding **claims 65, 76, 87, 98, and 107**, Sanmugam discloses the access node of claim 64, wherein the QoS comprises a page transmission timing constraint (see col. 10, lines 4-6; col. 12, lines 12-18,31-40; Fig. 8B 'ref. 212'), where a paging attempt has a priority for waiting time in a buffer. Sanmugam does not specifically disclose having the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay. However, the examiner maintains that the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay was well known in the art, as taught by Laroia.

In the same field of endeavor, Laroia discloses the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay (see col. 3, line 38 - col. 4, lines 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Laroia to have the feature(s) wherein the page transmission timing constraint indicates paging latency information and specifies an upper bound on paging delay, in order to have latency significantly reduced in a base station transmitting a paging message to a wireless terminal receiving a paging message, as taught by Laroia (see col. 2, lines 33-36).

Claims 69, 80, 91, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Sanmugam** (**US 5,533,094**) in view of **Miah et al**. (hereinafter Miah) (**EP 1217855 A1**) as applied to claim 109, 110, 111, and 112 above, and further in view of **Weber et al**. (hereinafter Weber) (**US 6,314,282 B1**).

Regarding **claims 69, 80, 91, and 102**, the combination of Sanmugam and Miah discloses every limitation claimed as applied above in claim 59. The combination of Sanmugam and Miah does not specifically disclose having the feature(s) wherein the determined level of quality of service comprises information indicating a state of device operation in which an end node to which the page is directed is to operate after receiving the page. However, the examiner maintains that the feature(s) wherein the determined level of quality of service comprises information indicating a state of device operation in which an end node to which the page is directed is to operate after receiving the page was well known in the art, as taught by Weber.

In the same field of endeavor, Weber discloses the feature(s) wherein the determined level of quality of service comprises comprise information indicating a state of device operation in which a mobile terminal (7) which reads on the claimed "end node" to which the page is directed is to operate after receiving the page (see col. 5, lines 40-49,3-22; col. 6, lines 13-20; Figs. 3, 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Sanmugam, Miah, and Weber to have the feature(s) wherein the determined level of quality of service comprises comprise information indicating a state of device operation in which an end node to which the page is

directed is to operate after receiving the page, in order to provide mode change information that will automatically change the mode of a mobile terminal, as taught by Weber (see col. 2, lines 9-13, 65-67).

Response to Arguments

5. Applicant's arguments with respect to claims 58-63, 65-74, 76-85, 87-96, 98-105, and 107-118 have been considered but are moot in view of the new ground(s) of rejection necessitated by the new claims.

In response to applicant's arguments, the Examiner respectfully disagrees as the applied reference(s) provide more than adequate support and to further clarify (see the above claims for relevant citations and comments in this section).

6. The Examiner requests applicant to provide support (e.g., page(s), line(s), and drawing(s) as well as comments) for the new and/or amended claim language and any further amended claim language.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Bender et al. (US 6,961,329 B1) discloses a method and apparatus for forwarding messages among multiple radio networks. Bender at the least further discloses …unsolicited CDMA message (e.g., paging request messages) are sent by the MSC to the CDMA radio network (see Bender - col. 8, lines 11-13). In addition, Bender

further discloses …unsolicited CDMA messages are thus sent…and can be sent by…the CDMA BSC to the HDR BSC with which the access terminal has tuned (see Bender - col. 8, lines 23-26).

b. Melpignano et al. (US 7,193,991 B2) discloses a radio communication arrangements. Melpignano at the least further discloses …the currently connected access point AP_1…transmits a multicast page request message…to its neighboring access points AP_2, AP_3, which are the access points into whose coverage area the mobile terminal MT may have moved or be heading (see Melpignano - col. 12, lines 36-42).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIE J. DANIEL JR whose telephone number is (571)272-7907. The examiner can normally be reached on 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Appiah can be reached on (571) 272-7904. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WJD,Jr/

WJD,Jr
08 October 2010

/Charles N. Appiah/
Supervisory Patent Examiner, Art Unit 2617